

## Lesson Plan: Translating words into numerical/algebraic expressions

### **Objective:**

Students will be able to translate sentences into numerical/algebraic expressions and equations

### **Do Now:**

Are the following statements true or false?

- 1) the sum of twenty and thirty is fifty
- 2) 7 time 1 equals 1
- 3) half of 66 will be 23
- 4) ten doubled and then divided by 2 equals ten
- 5) 2 cubed is the same as  $2^3$
- 6) a quarter of 100 is 20
- 7) 145 less 69 is 76

### **Introduction:**

•Have students read the following paragraph:

After the change of sides, Mabel stood Shirley in place and told her she would be first to hit. Shirley would have preferred to study the problem some more, but was afraid to protest and lose face for her captain. Standing tall, with feet together, stick on her shoulder, she waited bravely. Dog Breath had a ritual of his own to perform, but then suddenly, the ball was coming her way. Her eyes squeezed shut.

From *In the Year of the Boar and Jackie Robinson* by Bette Bao Lord.

- Ask the students what the paragraph is about (Playing stick ball or baseball)
- Ask students what key words help us know this (change of sides, hit, stick on shoulder, ball)
- In math key words also help us know what a problem is about or what is being asked of us to do

### **Guided Practice:**

•What is the difference between an expression and an equation?

Expressions	Equations
$5 + 8$	$6 + 3 = 9$
$7 - m$	$m + 9 = 20$
$6(k + 2)$	$3k - 2k = k$
The sum of 7 and an unknown	The sum of 7 and an unknown is 16

- Have students look at the table and note similarities and difference
- Refer to the = column of table of key words and emphasize words that represent this symbol
- Provide students with a list of written sentences that must be translated into symbolic mathematical sentences
- First have students find all numbers in the problem and write them immediately above the corresponding terms
- Underline all the math keywords and place corresponding symbol directly above the word

For example:

x            5            3

The product of five and three

$5 \times 3$

$$4 + y = 17$$

Four more than y is 17

$$y + 4 = 17$$

### Independent Practice:

- Give students numerous problems to translate (remember to follow order of operations)

Written Form	Symbolic form
8 more than d	
the sum of nine and c	
the product of a and seven is twenty one	
one hundred increased by n	
the quotient of 6 and 2	
twice as many flowers as Susan picked	
the cost of tea plus 10 cents tax is \$2.00	
63 is 1 more than twice the number of miles Tim drove	
5 more than the number of paper clips divided into four groups	
the sum of twenty six and twenty one is equal to forty seven	
120 divided by 6 is 20	
If you double my age and add 6, the result would be 26	
In a case of 24 cans of soda, 6 were broken open. The result was that 18 remained unbroken.	
one-half of a number is 12	
five more than 100 divided by ten is 15	
sixty less than the product of a number and twenty	
five times a certain number plus 10 has the same value as 25	
when 16 is subtracted from 8 times a certain number the result is 80	

- Go over answers
- Discuss problem areas such as

12 less than 54

$54 - 12$

not

$12 - 54$

12 divided by y

$12 \div y$  or  $12/y$

### Closing:

- Many things we do in our everyday life involves numbers and math, however we may not realize this. Here is a story that may sound familiar to some of you.
- Have students underline mathematical words and circle numbers. Have students write a numerical expression for the story below.

*Four friends were playing ball in the park. They were having a great day because it was the weekend. Later, 2 more friends from their neighborhood joined them. Now there were six friends playing in the park. Another group of 6 kids saw the group of 6 playing and asked if they could join and make two teams. Everyone agreed because this made the game more competitive. Everyone was out to win. The group stayed in the park long after the game was over just talking about their favorite topics.*

- Have students write a separate numerical expression for the end of the story.

*As it was getting later, everyone was getting tires and hungry. When they were ready to go home, the large group of 12 friends divided into 4 groups. Each group had the same number of people. This way 4 groups of 3 kids walked each other home.*

- For homework have students write a story from their lives that can be translated into a mathematical expression or equation.